

REMARKS

Claims 1-24 are pending in the present application. Claims 1, 11, 21 and 22 have been amended and claims 23 and 24 have been added. Claims 1, 11, 21 and 22 are independent. Reconsideration of this application, as amended, is respectfully requested.

Reasons for Entry of Amendments

It is respectfully requested that the present amendments be entered into the official file in view of the fact that the amendments to the claims place the application into condition for allowance. In the alternative, if the Examiner does not believe that the application is in condition for allowance, it is requested that the present amendments be entered for the purposes of appeal. The amendments simplify the issues for appeal by clarifying that the rotation variation coefficient is not the engine speed as interpreted by the Examiner.

Applicant submits that the amendments to the claims also raise no new issues. The specification as filed was clear that the rotation variation coefficient is not the engine speed as interpreted by the Examiner. In addition, Applicant presented arguments to the Examiner in the Amendment dated February 15, 2005 that the rotation variation coefficient is not the engine speed. In view of this, this aspect of the present invention should have been previously searched and considered such that no further consideration is necessary from the Examiner.

Rejection Under 35 U.S.C. § 102

Claims 1-4 and 11-14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kai, U.S. Patent No. 5,445,121. Claims 5 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kai in view of Ogawa et al., U.S. Patent No. 4,931,940. These rejections are respectfully traversed.

The present invention is directed to a clutch connection/disconnection detection system and a method for detecting clutch connection/disconnection. Independent claim 1 is directed to the clutch connection/disconnection detection system and recites a combination of elements including "a rotation variation coefficient detector that detects the rotation variation coefficient of said crankshaft, the rotation variation coefficient being a coefficient that changes with engine speed" and "a decision mechanism that decides the connection/disconnection of said clutch by comparing said rotation variation coefficient detected by said rotation variation coefficient detector with a preliminarily determined threshold."

With regard to independent claim 11, this claim is directed to the method for detecting clutch connection/disconnection and recites a combination of steps including "detecting a rotation variation coefficient of said crankshaft, the rotation variation coefficient being a coefficient that changes with engine speed" and "deciding the connection/disconnection of said clutch by comparing said rotation variation coefficient of the crankshaft with a preliminarily determined threshold."

According to the above apparatus and method of the present invention, it is possible to detect connection/disconnection of the clutch with high accuracy. Applicant respectfully submits that the references relied on by the Examiner fail to teach or suggest the present invention as recited in independent claims 1 and 11. Accordingly, the references relied on by the Examiner cannot accomplish the advantages of the present invention.

In particular, referring to the Kai reference, this reference is directed to an engine operational control unit. Referring to column 4, line 64 through column 5, line 4, Kai discloses a system for protecting the engine in the event of an abnormal condition. In particular, the abnormal condition is the throttle control 29 and the throttle valve 28 not being in a proper position with respect to each other. The Kai reference is silent with regard to the rotation variation coefficient detector recited in independent claim 1 and the step of detecting a rotation variation coefficient as recited in independent claim 11. Referring to the Examiner's Office Action, the Examiner considers the rotation variation coefficient to be the engine speed N . However, as can be clearly understood from FIG. 4 of the present invention, the rotation variation coefficient is not the engine speed, but is a coefficient that changes with the engine speed. Since the Kai reference fails to disclose this aspect of the present invention, Applicant respectfully submits that the Kai reference fails to anticipate independent claims 1 and 11 of the present invention for at least this reason.

In the Examiner's Office Action dated April 14, 2005, the Examiner has taken the position that the rotation variation coefficient is the engine speed. While not conceding to

the appropriateness of the Examiner's rejection, but merely to advance prosecution of the present application, Applicant has amended independent claims 1 and 11 to clarify that the rotation variation coefficient is not the engine speed, but is a coefficient that changes with the engine speed. Specifically, independent claims 1 and 11 have been amended to recite "the rotation variation coefficient being a coefficient that changes with engine speed." Since the rotation variation coefficient changes with the engine speed, it cannot be the engine speed. In view of this, the Examiner's interpretation of the rotation variation coefficient being the engine speed is clearly inappropriate. In view of this, the Kai reference fails to anticipate independent claims 1 and 11 of the present invention.

With regard to the recitation "a decision mechanism that decides the connection/disconnection of said clutch" in independent claim 1 and the recitation "deciding the connection/disconnection of said clutch by comparing said rotation variation coefficient of the crankshaft with a preliminarily determined threshold" in independent claim 11, Applicant submits that the Kai reference also fails to disclose this aspect of the present invention. Specifically, the Kai reference does not make any decision with regard to whether the clutch is connected or disconnected. Referring to FIG. 4 of Kai, it is disclosed that there is a particular engine speed N where the centrifugal clutch is engaged; however, there is no specific element of Kai that actually decides that the clutch is disconnected or connected. In addition, there is no specifically described step of deciding the connection/disconnection of the clutch as recited in independent claims 1 and 11 of the present invention.

Referring to the Examiner's Office Action, the Examiner considers the decision means to be element 37, which is the operational control unit. However, the operational control unit 37 of Kai only considers the position of the throttle valve 28 by the sensor 38 and the position of the control lever 29 by the sensor 39, and if an abnormality occurs and the engine speed N is at a particular value determined from the sensor 41, then certain corrective action is taken. There is absolutely no suggestion in the Kai reference of a decision mechanism or a step of deciding the connection/disconnection of the clutch as recited in independent claims 1 and 11 of the present invention. Accordingly, the Kai reference fails to anticipate independent claims 1 and 11 for this additional reason.

In the Examiner's Office Action, the Examiner has taken the position that the engine speed is the rotation variation coefficient. For the reasons mentioned above, the engine speed cannot be the rotation variation coefficient, since claims 1 and 11 have been amended to recite "the rotation variation coefficient being a coefficient that changes with engine speed." In view of this, the Examiner's rejection is improper and should be withdrawn.

With regard to the Examiner's reliance on the Ogawa et al. reference, this reference has only been used by the Examiner to disclose a rotational position detector having nine projections. In view of this, the Ogawa et al. reference fails to make up for the deficiencies of Kai.

With regard to dependent claims 2-5 and 12-15, Applicant respectfully submits that these claims are allowable due to their respective dependence upon independent claims 1 and 11, as well as due to the additional recitations in these claims.

In view of the above amendments and remarks, Applicant respectfully submits that claims 1-5 and 11-15 clearly define the present invention over the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. §§ 102 and 103 are respectfully requested.

Allowable Subject Matter

Claims 6-10 and 16-22 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Applicant greatly appreciates the indication of the allowable subject matter by the Examiner. However, claims 6-10 and 16-20 have not been rewritten in independent form at this time, since it is believed that independent claims 1 and 11 are in condition for allowance. However, Applicant reserves the right to rewrite these claims in independent form at a later date if it is so desired.

With regard to claims 21 and 22, as the Examiner will note, these claims have been rewritten in independent form. Therefore, claims 21 and 22 should be in condition for allowance.

Additional Claims

Additional claims 23 and 24 have been added for the Examiner's consideration. Applicant respectfully submits that these claims are allowable due to their respective dependence on independent claims 1 and 11, as well as due to the additional recitations in these claims.

Favorable consideration and allowance of additional claims 23 and 24 are respectfully requested.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently pending rejections and that they be withdrawn.

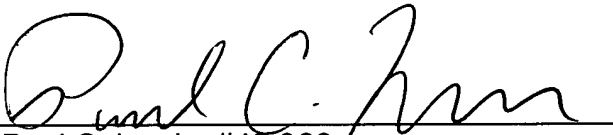
It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Paul C. Lewis, Registration No. 43,368 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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